

## PATENT ABSTRACTS OF JAPAN

(11)Publication number : 11-318980

(43)Date of publication of application : 24.11.1999

(51)Int.Cl.

A61F 13/15

A61F 5/44

(21)Application number : 10-135050

(71)Applicant : ZUIKO CORP

(22)Date of filing : 18.05.1998

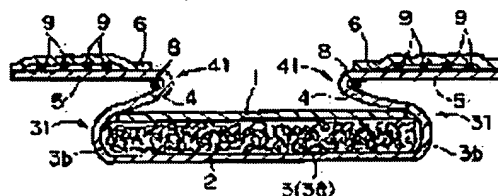
(72)Inventor : INOUE KIYOBUMI

## (54) DISPOSABLE DIAPER

## (57)Abstract:

**PROBLEM TO BE SOLVED:** To provide a disposable diaper which is excellent in adhesion property around the leg parts, even if the width of an absorbent is increased, and has an effective shape for preventing side leakage by forming pleats on both side parts of the diaper by using a back sheet, without providing a separate rising gather.

**SOLUTION:** This diaper is provided with a water permeable top sheet 1, a water impermeable back sheet 2 and an absorbent 3 disposed between both the sheets 1 and 2. In this case, the back sheet 2 can be folded along a side surface of the absorbent 3, and a folded-back part 4 extending inward of a disposable diaper from this folded end and a side flap part 5 extending outward of the disposable diaper from a tip of this folded-back part 4 are formed. Therefore, an elastic body 8 in an elongating state is attached between the folded-back part 4 and the side flap part 5 and an elastic body 9 in an elongating state is attached to the upper side of the side flap part 5.



## LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

Copyright (C); 1998,2003 Japan Patent Office

BEST AVAILABLE COPY

\* NOTICES \*

Japan Patent Office is not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. \*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

---

CLAIMS

---

[Claim(s)]

[Claim 1] In the disposable diaper equipped with the permeable top sheet, the impermeability backseat, and the absorber arranged among both sheets, while the above-mentioned backseat is bent along the side face of an absorber The clinch section extended from this bending edge to a way among disposable diapers and the side flap section extended from the tip of this clinch section to a way outside a disposable diaper are formed. The disposable diaper characterized by installing the elastic body of an expanding condition above the side flap section while the elastic body of an expanding condition is installed between said clinch section and said side flap section.

[Claim 2] The above-mentioned clinch section is a disposable diaper according to claim 1 which is what has fixed [ the above-mentioned top sheet has fixed with the absorber, and / only near the longitudinal direction center section of a disposable diaper ] with the top sheet.

[Claim 3] The above-mentioned clinch section is a disposable diaper according to claim 1 which is what has fixed [ the above-mentioned top sheet has fixed with the absorber, and / only near the longitudinal direction both ends of a disposable diaper ] with the top sheet.

[Claim 4] The disposable diaper according to claim 1 which is what the above-mentioned clinch section has fixed with the absorber only [ near the longitudinal direction center section of a disposable diaper ], and has fixed to the end face of the side flap section of right and left of the edges on both sides of the above-mentioned top sheet.

[Claim 5] The disposable diaper according to claim 1 which is what the above-mentioned clinch section has fixed with the absorber only [ near the longitudinal direction both ends of a disposable diaper ], and has fixed to the end face of the side flap section of right and left of the edges on both sides of the above-mentioned top sheet.

---

[Translation done.]

## \* NOTICES \*

Japan Patent Office is not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. \*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

---

DETAILED DESCRIPTION

---

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the disposable diaper of structure effective for horizontal leakage prevention.

[0002]

[Description of the Prior Art] A FASUNINGU tape is attached to the both-sides section of the end of the longitudinal direction of a disposable diaper, and the disposable diaper used at the time of wear, forming in a trousers mold is marketed.

[0003] The perspective view of the conventional disposable diaper 20 was shown in drawing 1. This disposable diaper 20 attaches the FASUNINGU tapes 27 and 27 firmly to the target tape 29, and wears them. And it starts in this disposable diaper 20 toward a wearer's skin, and "standup gathers" G [ so-called ] for damming up the horizontal leakage of urine or a loose passage and G are prepared in it.

[0004] a part of condition of having turned up the field which contacts a wearer's skin in the disposable diaper 20 of drawing 1 at drawing 2 -- a notch top view -- moreover, the A-A line sectional view in drawing 2 was shown in drawing 3. The disposable diaper 20 carries out the laminating of the backseat 23 of the sandglass configuration of a large area rather than the absorber 22 and absorber of the rectangle-like top sheet 21 and a sandglass configuration, and is constituted by pasting up suitably.

[0005] Standup gathers consist of yarn-like elastic bodies 26 pasted up in the state of expanding into the bag of the band-like members 24, such as a nonwoven fabric prepared in right and left of a disposable diaper, and the band-like member 24 bent by saccate by the point. In the cross direction of a diaper, it has pasted up with the backseat 23 in the field from the edges on both sides of a diaper to the edges on both sides of the top sheet 22, and in the longitudinal direction of a diaper, this band-like member 24 is near [ which was shown with the slash / 29 (there are although four notch parts were omitted.) ] the longitudinal direction both ends, and is pasted up with the top sheet 21. Therefore, the band-like member 24 and the top sheet 22 are not pasted up between the jointing 29 of the upper limit of a diaper longitudinal direction, and the jointing 29 of a lower limit. For this reason, as shown in drawing 1, it will start toward a wearer's skin by making the adhesion line of the band-like member 24 and the side edge of the top sheet 22 into a end face according to the shrinkage force of the yarn-like elastic body 26 with which the band-like member 24 was attached at that tip at the time of diaper wear, and the weir which prevents the horizontal leakage of urine or a loose passage will be formed.

[0006] On the other hand, in order to secure the adhesion of the circumference of a foot, between the band-like member 24 and a backseat 23, the yarn-like elastic bodies 25 and 25 have pasted up and this forms leg gathers.

[0007]

[Problem(s) to be Solved by the Invention] By the way, such a conventional disposable diaper makes thin width of face of the absorber near the length-from-the-crotch-to-the-cuff center section so that the flexible force of leg gathers may not be checked. Since it is also the place from which urine and a loose passage tend to leak near the length-from-the-crotch-to-the-cuff center section, the larger one of the width of face of an absorber is desirable, but if width of face of an absorber is made large, spacing of an absorber and leg gathers will become narrow. Since the rigidity of an absorber is larger than the shrinkage force of leg gathers, the problem of the adhesion of the circumference of a foot worsening and carrying out horizontal leakage if spacing of an absorber and leg gathers becomes narrow occurs. Moreover, since the standup gathers of leakage prevention were prepared by another member, the process at the time of continuation manufacture increased, and it had become the cause which bars improvement in the speed.

[0008] Then, without preparing the standup gathers of another object, by forming a pleat in the both-sides section of a diaper using a backseat, even if the purpose of this invention made width of face of an absorber large, it was excellent in the adhesion of the circumference of the leg, and it hung up offering the disposable diaper of a configuration effective for horizontal leakage prevention as a technical problem.

[0009]

[Means for Solving the Problem] In the disposable diaper equipped with the absorber with which invention concerning claim 1 was arranged between a permeable top sheet, an impermeability backseat, and both sheets, while the above-mentioned backseat is bent along the side face of an absorber. The clinch section extended from this bending edge to a way among disposable diapers and the side flap section extended from the tip of this clinch section to a way outside a disposable diaper are formed. While the elastic body of an expanding condition is installed between said clinch section and said side flap section, the elastic body of an expanding condition is installed above the side flap section. According to this configuration, since the pleat is formed in the right-and-left both-sides section of a diaper of the clinch section and the side flap section, regardless of the width of face of an absorber, the broad leg gathers which can be stuck to the circumference of the leg can be formed.

[0010] Invention concerning claim 2 has fixed the top sheet with the absorber in a disposable diaper according to claim 1, and the above-mentioned clinch section has fixed with the top sheet only [ near the longitudinal direction center section of a disposable diaper ]. Since it becomes the configuration which a pleat opens to a venter [ of a wearer ] and back side according to this configuration, the disposable diaper which does not have a feeling of oppression in the circumference of the waist, and was moreover excellent in adhesion can be offered. Moreover, since the top sheet and the absorber have fixed, urinary absorption is quick.

[0011] Invention concerning claim 3 has fixed the top sheet with the absorber in a disposable diaper according to claim 1, and the above-mentioned clinch section has fixed with the top sheet only [ near the longitudinal direction both ends of a disposable diaper ]. According to this configuration, since the end face of a pleat serves as an edge of a diaper, a pleat will open in a length-from-the-crotch-to-the-cuff part,

the absorber of an urination part can be formed in double width, and the horizontal leakage of urine can be prevented as much as possible. [0012] In a disposable diaper according to claim 1, the above-mentioned clinch section has fixed invention concerning claim 4 with the absorber only [ near the longitudinal direction center section of a disposable diaper ], and the edges on both sides of the above-mentioned top sheet have fixed to the end face of the side flap section on either side. According to this configuration, the disposable diaper which does not have a feeling of oppression in the circumference of the waist, and was moreover excellent in adhesion like invention concerning above-mentioned claim 2 can be offered. Moreover, since the top sheet did not fix to an absorber but it has fixed in the side flap section, when a pleat opens, an opening is formed between a top sheet and an absorber and it can lose un-arranging [ that the moisture of the urine absorbed by the absorber touches a wearer again ].

[0013] In a disposable diaper according to claim 1, the clinch section has fixed invention concerning claim 5 with the absorber only [ near the longitudinal direction both ends of a disposable diaper ], and the above-mentioned top sheet edges on both sides have fixed to the end face of the side flap section on either side. According to this configuration, the absorber of an urination part can be formed in double width like invention concerning above-mentioned claim 3, and the horizontal leakage of urine can be prevented as much as possible. Moreover, the effectiveness of a pleat is the same as invention concerning claim 4.

[0014]

[Embodiment of the Invention] Drawing 4 - drawing 5 show the operation gestalt of the disposable diaper concerning claims 1-3 of this invention, and drawing 5 is the B-B line sectional view of drawing 4. this disposable diaper D1 -- the crosswise center section of the diaper -- setting -- most -- a top-face side (body contact side side) -- the top sheet 1 -- the top sheet 1 bottom -- an absorber 2 -- moreover, a backseat 3 is arranged in that bottom, respectively, and it has a laminated structure which pinched the absorber 2 between the top sheet 1 and the backseat 3.

[0015] As a top sheet 1, the touch uses permeable ingredients, such as a good nonwoven fabric and a puncturing film excellent in the dry feeling. An absorber 2 mixes suitably pulp fiber, absorptivity polymer powder, thermoplastic fiber, etc., and fabricates them in the shape of a mat, and the ingredient wrapped in carrier sheets, such as a nonwoven fabric and paper, is used. As a backseat 3, a detailed puncturing film, the nonwoven fabrics which gave a water-repellent finish, or these laminating sheets are used. As for the top sheet 1, an absorber 2, and a backseat 3, it is desirable to paste up with the hot melt adhesive applied the shape of a fog, the shape of a dot, and in the shape of a spiral so that neither water permeability nor permeability may be checked.

[0016] Furthermore, the FASUNINGU tapes 7 and 7 for forming in a trousers mold at the disposable diaper D1 at the time of wear are formed in the right-and-left side edge of diaper longitudinal direction both ends. This FASUNINGU tape prepares a target tape in the backseat side near [ another ] the longitudinal direction edge like the diaper of the conventional technique shown in drawing 1, when it is a thing using a binder. Moreover, a mechanical FASUNINGU system may be used.

[0017] In this invention, a backseat 3 has lateral portion 3b which touches bottom surface part 3a in contact with the base of an absorber 2 on the side face of an absorber 2, and it is bent so that the base and side face of an absorber 2 may be met (refer to drawing 5). In order to hold this bending condition, it is desirable to paste up the side face of an absorber 2 and backseat lateral portion 3b. From the bending edge 31 of a backseat, the clinch section 4 is extended toward the way among disposable diapers. Moreover, from the tip 41 of this clinch section 4, the side flap section 5 has extended toward a way outside a disposable diaper. Both the clinch section 4 and the side flap section 5 make a backseat 3 extend to absorber edges on both sides, and, as for these, forming by passing through a clinch process is formed using the member united with the backseat since it was desirable on manufacture. It is desirable to form a sideseat 6 on the side flap section 5. Of this side flap section 5 and sideseat 6, the appearance of the disposable diaper D1 of the abbreviation sandglass configuration of having the notches K and K for feet is formed.

[0018] Between the clinch section 4 and the side flap-section 5, an elastic body 8 is installed in the state of expanding. That is, the clinch section 4 and the side flap section 5 are attached firmly in the installation part of an elastic body 8. Therefore, since the pleat which is the description of this invention will not open before the tip 41 of the section 4 by return from the fixing part of an elastic body 8, it is desirable that this elastic body 8 prepares only one yarn-like elastic body [ like polyurethane yarn ] whose elastic body 8 is also preferably [ arranging in a place near at the tip 41 of the clinch section 4 ].

[0019] On the other hand, the elastic body 9 of every four right and left and 9 -- are installed in the side flap section 5 in the state of expanding. Since the structure of the disposable diaper of this invention is not caught by the width of face of an absorber but can form broad leg gathers, it is desirable for it not to be restricted to the example of drawing of every four right and left, but to make the elastic body of an a large number book estrange in the side flap section 5, and to prepare in it. In addition, what is necessary is not to form the elastic bodies 9 and 9 arranged in the side flap section 5 covering the overall length of a disposable diaper, and to prepare them only near the notch K for \*\*\*\*\* (the field X of drawing 4 ).

[0020] Thus, when the disposable diaper of constituted this invention gains in the weight of an absorber by the time of wear, or urination, as shown in drawing 6, when an absorber 2 hangs down, the clinch section 4 will rise high to an absorber. That is, it will be in the condition that the pleat opened. For this reason, according to the side flap section 5 and the field formed from near the tip of the section 4 by return, leg gathers will be formed, and it is broad and becomes the leg gathers of field contact. Consequently, gathers excellent in adhesion can be formed, without giving a feeling of oppression to the circumference of a foot. Furthermore, this opened function as a weir to prevent the horizontal leakage of urine since Pocket P is formed of the section 4 by return can also be demonstrated. Furthermore, since the width of face of an absorber 2 was determined freely, without being influenced by the width of face of the side flap section 5, and the width of face of the clinch section 4, it did not have to be made the absorber of the sandglass configuration which has the vena contracta in the center like the diaper of the conventional technique, and it became possible to consider as the absorber of the shape of a rectangle with sufficient width of face. Therefore, [ near / where urination takes place / the length-from-the-crotch-to-the-cuff section ], it has sufficient absorptive power and becomes the disposable diaper which can moreover prevent the horizontal leakage of urine.

[0021] In addition, although the sideseat 6 is formed on the side flap section 5, this sideseat 6 is not an indispensable member. However, since it is useful as a member for a presser foot when pasting up an elastic body 9 on the side flap section 5, using is recommended. Since a sideseat 6 is a member which touches the skin, considering as the good nonwoven fabric of the touch is desirable. It is good also as a sideseat 6 by turning up the side flap section 5 further. The FASUNINGU tape 7 is good to paste the side flap section 5 bottom, when the sideseat 6 is not arranged, and when the sideseat 6 is arranged, it is good to insert and paste up between a sideseat 6 and the side flap section 5.

[0022] Since the pleat which is the description of this invention stops opening the clinch section 4 when the top sheet 1 on an absorber 2 is pasted over the longitudinal direction whole region of a diaper, it is desirable to have not pasted up at all or to have pasted up partially. As

especially shown in the top view of drawing 7, it is two places of the firm attachment sections 10 and 10 near the longitudinal direction center section of a disposable diaper, or it is desirable to attach firmly to the top sheet 1 by four places of the firm attachment sections 11 and 11 near the longitudinal direction both ends. Since it becomes the configuration which a pleat opens to a venter [ of a wearer ] and back side when the section 4 and the top sheet 1 are attached firmly by return only near the longitudinal direction center section of the diaper, the disposable diaper which does not have a feeling of oppression in the circumference of the waist, and was moreover excellent in adhesion can be offered. Moreover, since the end face of a pleat serves as an edge of a diaper when the section 4 and the top sheet 1 are attached firmly by return only near the longitudinal direction both ends, in a length-from-the-crotch-to-the-cuff part, a pleat will open most greatly. For this reason, the absorber of an urination part can be formed in double width, and the horizontal leakage of urine can be prevented as much as possible.

[0023] Drawing 8 - drawing 9 show the operation gestalt of the disposable diaper concerning claims 4-5 of this invention, and drawing 9 is the C-C line sectional view of drawing 8. This disposable diaper D2 differs from the example shown in drawing 4 -5 at the point which the edges on both sides of the top sheet 1 have fixed to the end face 51 of the side flap section 5 on either side. In this operation gestalt, it is [ the clinch section 4 ] desirable only near the longitudinal direction center section of a disposable diaper to be (four fields shown with the sign 11 in drawing 7), and to attach firmly directly on the carrier sheet of the maximum surface of an absorber 2 only (two fields shown with the sign 10 in drawing 7), or near the longitudinal direction both ends. In addition, the top sheet 1 may fix on the sideseat 6.

[0024] Since according to this configuration the top sheet 1 did not fix to an absorber 2 but has fixed in the side flap section 5, when a pleat opens, an opening is formed between a top sheet and an absorber and it can lose un-arranging [ that the moisture of the urine absorbed by the absorber touches a wearer again ]. In addition, when enlarging the die length of the section 4 by return, it is desirable [ width of face of an absorber 2 is made large, and ] to constitute a top sheet elastically so that the width of face of a top sheet may not restrict the aperture of a pleat. In order to constitute a top sheet elastically, a means to put in a slit or a pleat at a longitudinal direction etc. is employable as a top sheet, using the material of elasticity.

[0025] Although the disposable diaper of this invention has the description in the structure explained above, it can also add an addition and the various design changes of well-known waist gathers in a field for the time being. In addition, an example of an approach which manufactures the disposable diaper of this invention is explained briefly hereafter.

[0026] Drawing 10 (a) The perspective view which saw the diaper concerning claims 2 or 3 from the longitudinal direction edge was shown in - (d). The same sign shows the same member as what was illustrated until now. In the edge of a diaper, it is in the condition that the top sheet 1 and the backseat 3 extended to the method of outside [ absorber / 2 ]. In addition, a continuation sheet is used and the top sheet 1 and a backseat 3 have the approach of manufacturing by laying an absorber 2 at intervals of predetermined adopted in an actual production process.

[0027] First, by drawing 10 (a), the backseat 3 in which the elastic body 8 is already attached is used in the condition of having broken so that the side flap section 5 might turn down (opposite side of an absorber contact side), and an absorber 2 and the top sheet 3 are laid on it.

[0028] In drawing 10 (b), a backseat 3 is turned up on the top sheet 1 so that the side face of an absorber 2 (it is not visible any longer) may be met. The section 4 is formed by return of this clinch. Then, in drawing 10 (c), the elastic body 9 of an expanding condition and 9 -- are stuck on the side flap section 5. Since the flexible force of an elastic body 9 is unnecessary in the side flap sections other than the field X in drawing 4 at this time, it is good in Field X to stick the side flap section 5 and an elastic body 9. After cutting to the diaper of each [ a continuation production process ], the elastic body part which is not stuck on the side flap section 5 only contracts.

[0029] At attachment, the coincidence, or the serial process of an elastic body 9, a sideseat 6 is laid on the side flap section 5, a sideseat 6 and the side flap section 5 are cut at once, and notch K for feet is formed. Although not illustrated, in the diaper edge, an elastic body is arranged along with the diaper edge between the top sheet 1 and a backseat 3, and a disposable diaper can be manufactured by incorporating the process which pastes up the top sheet 1 and a backseat 3 before the drawing 10 (a) process before and after the process separated to each diaper after one process of (a) - (d), coincidence, or drawing 10 (d).

[0030]

[Effect of the Invention] According to invention concerning claim 1, since the pleat is formed in the right-and-left both-sides section of a diaper of the clinch section and the side flap section, regardless of the width of face of an absorber, the broad leg gathers which can be stuck to the circumference of the leg can be formed.

[0031] Since it becomes the configuration which a pleat opens to a venter [ of a wearer ] and back side according to invention concerning claim 2, the disposable diaper which does not have a feeling of oppression in the circumference of the waist, and was moreover excellent in adhesion can be offered. Moreover, since the top sheet and the absorber have fixed, urinary absorption is quick.

[0032] According to invention concerning claim 3, since the end face of a pleat serves as an edge of a diaper, a pleat will open in a length-from-the-crotch-to-the-cuff part, the absorber of an urination part can be formed in double width, and the horizontal leakage of urine can be prevented as much as possible.

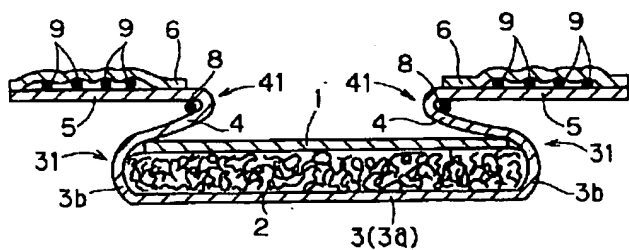
[0033] Since according to invention concerning claim 4 the top sheet has not fixed to an absorber and an opening is formed between a top sheet and an absorber when a pleat opens, it can lose un-arranging [ that the moisture of the urine absorbed by the absorber touches a wearer again ].

[0034] According to invention concerning claim 5, the absorber of an urination part can be formed in double width like invention concerning above-mentioned claim 3, the horizontal leakage of urine can be prevented as much as possible, and the same pleat formation effectiveness as invention concerning claim 4 can be acquired.

---

[Translation done.]

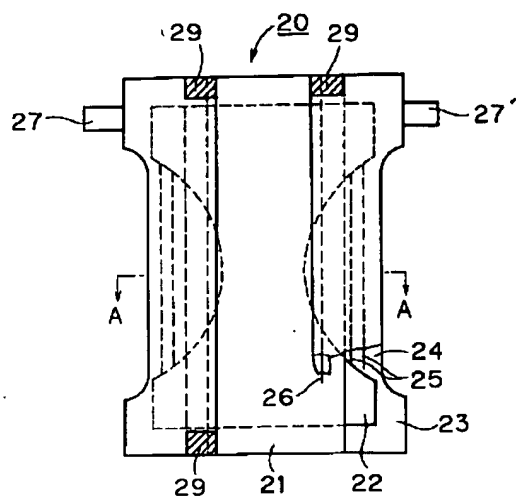
Drawing selection Representative drawing



[Translation done.]

**BEST AVAILABLE COPY**

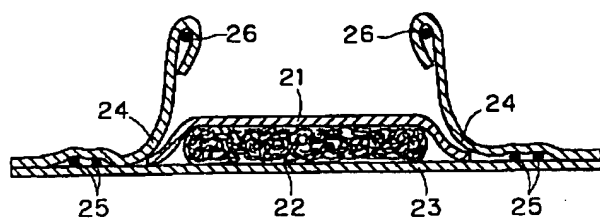
Drawing selection drawing 2



[Translation done.]

**BEST AVAILABLE COPY**

Drawing selection drawing 3

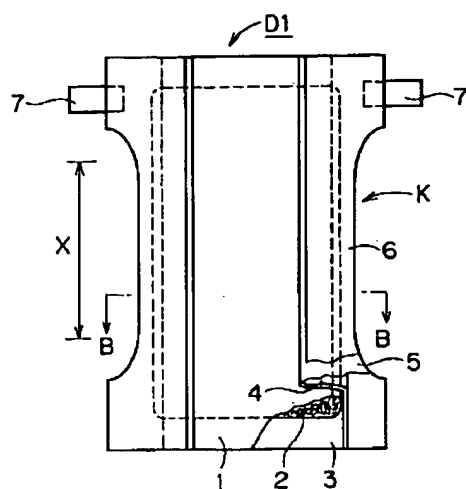


[Translation done.]

**BEST AVAILABLE COPY**



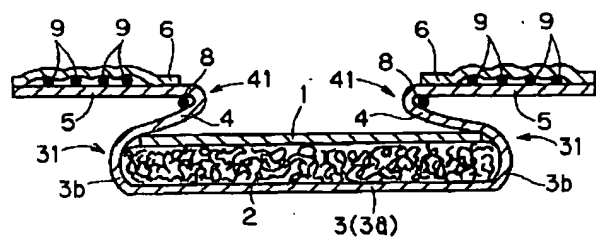
Drawing selection drawing 4



[Translation done.]

**BEST AVAILABLE COPY**

Drawing selection **drawing 5**

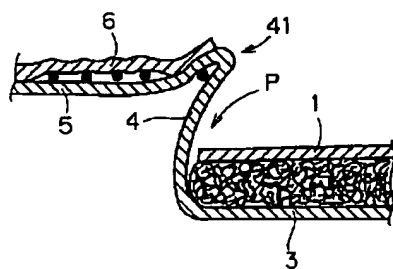


[Translation done.]

**BEST AVAILABLE COPY**

Drawing selection drawing 6

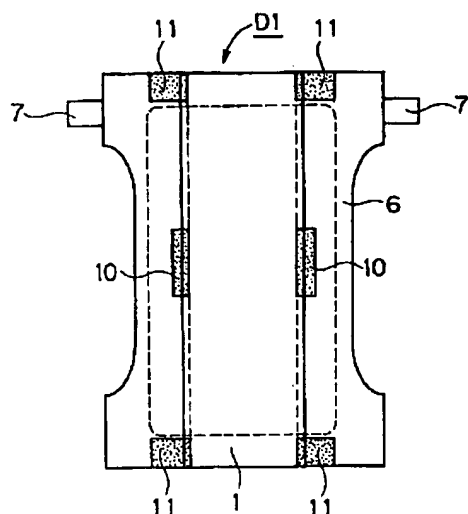
---



[Translation done.]

**BEST AVAILABLE COPY**

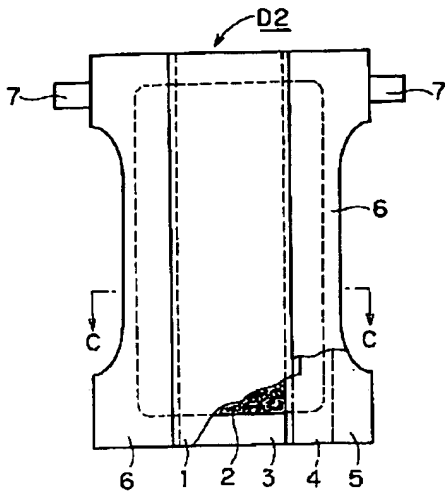
Drawing selection drawing 7



[Translation done.]

**BEST AVAILABLE COPY**

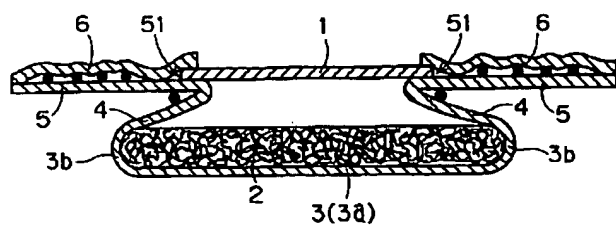
Drawing selection drawing 8



[Translation done.]

**BEST AVAILABLE COPY**

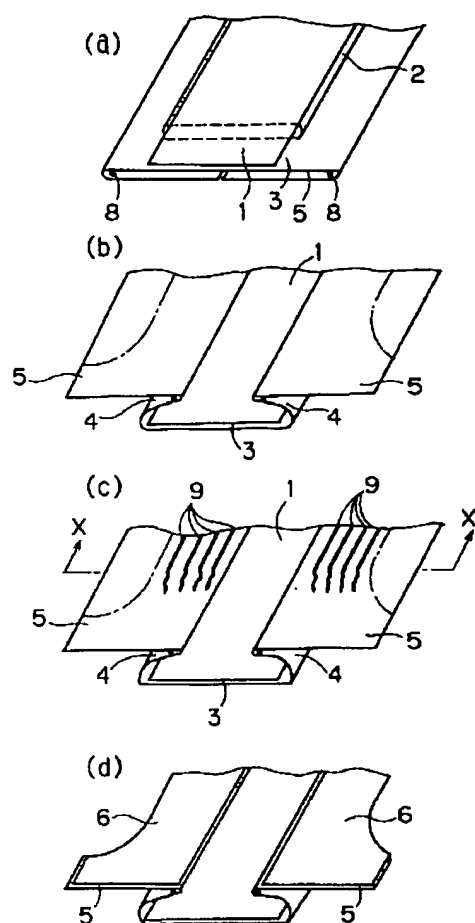
Drawing selection drawing 9



[Translation done.]

**BEST AVAILABLE COPY**

Drawing selection drawing 10



[Translation done.]